

Could minor cations and anions or other constituents such as fibers, contribute to the alkalinising properties of plant foods ?

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Classical conceptions about the arousal of latent metabolic acidosis (LMA) emphasizes the role of SO_4 overproduction and excretion as a critical acidifying factor (generally resulting from excess protein intake), and of that K anions salts (chiefly citrate and malate) as alkalinizing factors. The aim of the present text is not question these elements, but to examine whether additional factors could modulate LMA emergence or provide alkalinising factors to be taken into accounts besides K malate or K citrate.

- The connection between protein intake and some consequences of osteopenia are still disputed. In a study on a rat model adapted to different protein levels (13% and 26%), it was found that MLA was present with both levels of protein, provided that the mineral composition of the diet was non-alkalinising. This suggests that the anionic moiety of the diet plays a critical role in the acid-base balance and the prevention of MLA. *A contrario*, high urinary fluxes of sulfate do not systematically result in MLA, provided that proteins are accompanied by substantial amounts of K anions salts.

- Organic anions of fruits or vegetables are essentially accompanied by potassium but also by Mg and Ca (both representing around 20% of K supply). These last divalent cations could also contribute to neutralize fixed acidity in kidneys or to reconstitute the bone Ca or Mg stores. Furthermore, factors liable to improve Mg and/or Ca absorption, such as fermentable carbohydrates in the large intestine, might have an indirect impact on MLA. This possibility is difficult to put in evidence for Ca on a rat model which presents a low basal calciuria, but seems to exist for Mg.

- The question arises as to, besides K citrate or K malate, the actual role of other minor K organic anion salts that are either poorly absorbed in the small intestine or absorbed but poorly metabolized. In this view, it has been shown that a non absorbable but highly fermentable K salt such as K galacturonate is as effective as K citrate as alcalinising agent, whereas K tartrate was found poorly effective.

Taken together, these data suggest that various constituents of plant foods are liable to exert some influence on the acid-base status such as Mg organic salts and various K/Mg salts of poorly absorbed anions. The possible impact of fibers and resulting SCFA generation and absorption in the large intestine is still uncertain but awards further evaluation.